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RESOURCE ASSESSMENT
PROPOSED CACHE LA POUFRE RIVER
NATIONAL HERITAGE CORRIDOR

National Park Service
Rocky Mountain Regional Office
December 1990



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PUBLICATION



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- A. Summary of On-River Irrigation Features
- B. Historical Context
- C. Historic Resources within the 18½-Mile Cache la Poudre River Corridor


SUMMARY

The city of Fort Collins, representing several entities, funded a study by the National Park Service (NPS) to evaluate an 18.5-mile-long portion of the Cache la Poudre River corridor for National Heritage Corridor (NHC) status and possible affiliation with the National Park System. NPS planners and historians conducted documentary research and reconnaissance level field assessment of the study area.

The entire Poudre River Basin was used as the basis for development of the contextual theme, "The History of Water Law and Water Development in the Cache la Poudre River Basin and the Rocky Mountain West." Relative to this context, the basin was determined to have national significance, since it possesses exceptional value in illustrating or interpreting the cultural themes of our Nation's heritage. However, resources related to this theme, within the proposed NHC, were fragmentary, and lacked sufficient scope to qualify for national significance using criteria in the NPS management policies. Also, the opportunities for recreation, public use and enjoyment, and scientific study were found to be similar to other rivers along the front range of Colorado, and were not considered superlative.

Since the resources of the river corridor itself do not meet national significance criteria, affiliation with the National Park System is not suitable or feasible in its present form. This report presents opportunities that could be employed to qualify for National Park System affiliation. It also includes other management options to assist interested parties with continuation of planning and development for a Heritage Project related to the "Working River" theme. These options do not require involvement of the National Park Service beyond that which is already available through existing programs.

The National Park Service would like to thank the city of Fort Collins and many other entities and individuals for the help and support they provided in completing this study.



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INTRODUCTION

PURPOSE OF STUDY

In response to a request from the city of Fort Collins, the National Park Service (NPS) agreed to conduct a study that would evaluate the Cache la Poudre River for national significance under the theme of "The History of Water Development and River Basin Management in the Westward Expansion of the United States." Thus, the primary purposes of this study are to (1) assess the level of significance of the entire Poudre River basin and (2) assess of the 18.5-mile river corridor study area to determine if its resources meet the test of national significance. The city of Fort Collins, as lead agency representing Larimer County, Colorado State University, and the Northern Colorado Water Conservancy District, agreed to provide \$25,000 to fund this study.

CACHE LA POUFRE RIVER BASIN AND RIVER CORRIDOR STUDY AREA

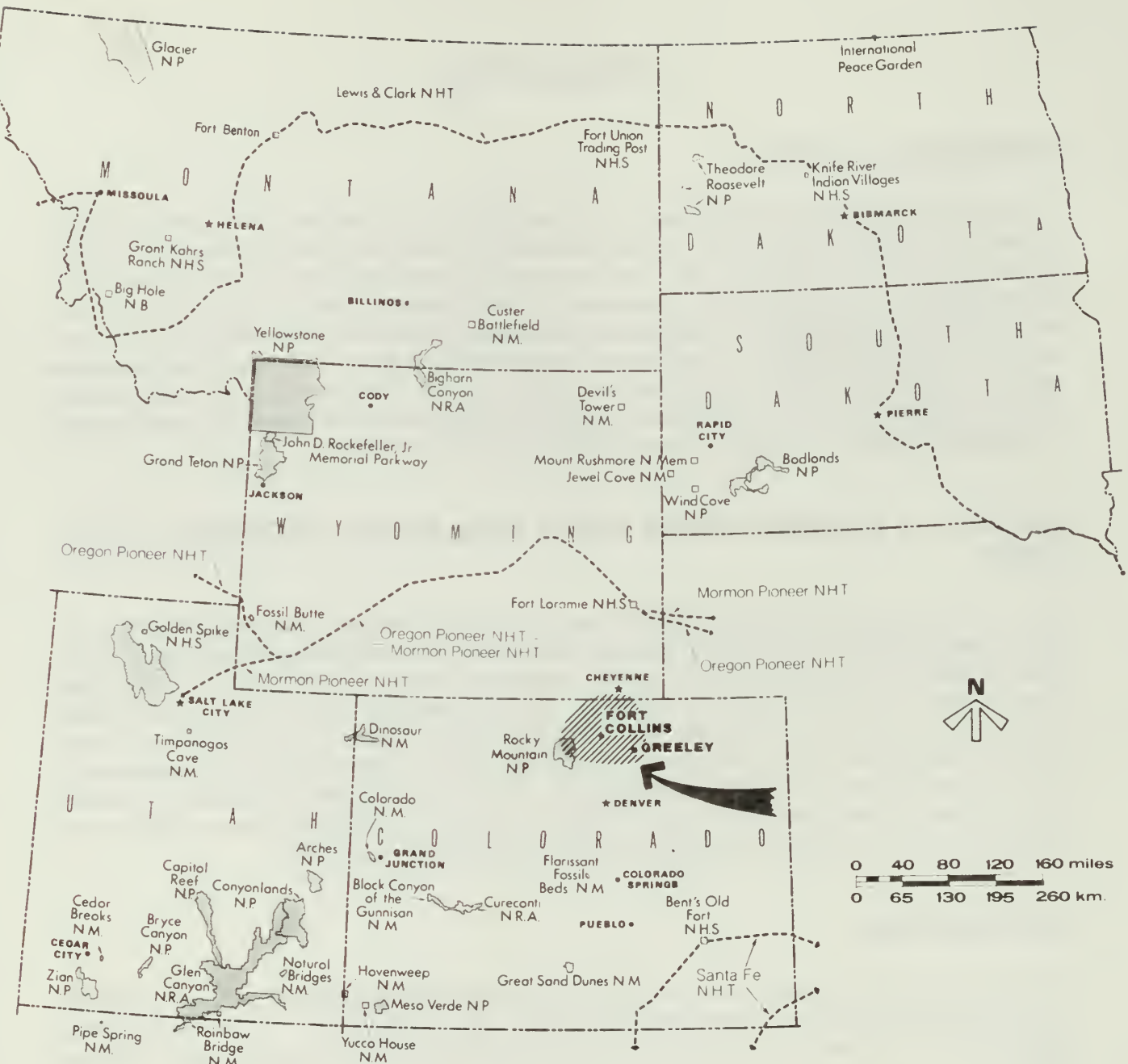
The study focused on two geographic areas (see Vicinity map and Cache la Poudre River Basin map). The first, the Cache la Poudre River Basin, is the drainage stretching from the Continental Divide in Grand and Larimer counties, Colorado, east to the South Platte River in Weld County. The second is the 18.5-mile river corridor study area, approximately 1 mile wide, reaching from Taft Hill Road at the northwest corner of the city of Fort Collins Urban Growth Area, to the Weld County line, east of I-25. This area encompasses nearly 9,900 acres of urban and rural land within the city of Fort Collins, the town of Timnath, and Larimer County (see River Corridor Study Area map). The study area encompasses boundaries of the National Heritage Corridor proposed in H.R. 5172.

BACKGROUND

Interest in creating opportunities for public and private stewardship of and interpretation of the Poudre River has been evolving since the early 1970s. Local and federal government, Colorado State University, and private citizens have been involved in these efforts.

Wild and Scenic River

In a cooperative study by the U.S. Forest Service and the state of Colorado, Department of Natural Resources, the upper Cache la Poudre River in Colorado was comprehensively analyzed for possible inclusion in the Wild and Scenic Rivers system. The result was that 75 miles of the river were included in the system, 44 miles designated as "recreational" and 31 miles as "wild."



Vicinity Map
 Cache La Poudre River Basin
**ROCKY MOUNTAIN
 REGION**

National Park Service
 United States Department
 of the Interior

Legend

- Locations of Major Cities
- * Locations of State Capitals
- State Boundary Lines
- National Park Service Areas
- National Park Service Historical Trails

National Recreation Area Study

In 1988, the city of Fort Collins and Larimer County, Colorado, with administrative support and technical assistance provided by the USDA-Forest Service, contracted to conduct a feasibility study for designation of a segment of the lower Cache la Poudre as a National Recreation Area (NRA). The study area for the NRA investigation included a corridor along the Poudre approximately 1 mile wide and 18.5 miles long. The study concluded that NRA designation was feasible and presented three NRA alternatives with a management concept and a plan projecting recreational development should NRA designation not occur.

The NRA study report left several unanswered questions related to legislative and management aspects of NRAs that could potentially result in significant adverse impacts to local government authority and to municipal operations in the affected area. Landowners in the study area were concerned that NRA designation could result in vandalism, a loss of privacy, and potential condemnation of land for NRA use (trails, facilities, etc.).

Poudre River NRA Task Force

The Fort Collins City Council endorsed the findings of the NRA study report, and expressed its commitment to implementing some form of comprehensive river management program via an NRA designation or other feasible alternative. It established a three-member task force to address key unanswered questions. Its charge was to determine whether it is possible to obtain federal enabling legislation that would be responsive to local concerns pertaining to water quality and land use issues and whether there is an appropriate federal agency that would be able and willing to cooperate with local interests in the management of an NRA.

The task force recommended acceptance of the theme "Interpretation of the History of Water Development and River Basin Management in the Westward Expansion of the United States," with the Poudre River basin as an appropriate and significant example. It also recommended a local initiative and National Heritage Corridor designation be adopted as the preferred course of action.

With the recommendation that the river corridor be designated as an NHC, the task force also recommended that the NPS be contacted as the federal partner in the designation effort. The NHC would be listed as an NPS Affiliated Area, as are three other NHCs (Blackstone River Valley, MA; Delaware and Lehigh Navigational Canal, PA; and Illinois and Michigan Canal, IL and MI.).

National Heritage Corridor Legislation

In late June 1990, Congressman Hank Brown introduced legislation (H.R. 5172) to establish a National Heritage Corridor based on the Poudre's exemplification of the importance of water in the westward expansion of the United States. The bill provides that the federal government would contribute up to \$250,000 annually to management of the

NHC; local groups would raise additional money through grants, donations, or possibly state lottery funds.

RESOURCES OF THE CACHE LA POUFRE RIVER BASIN AND RIVER CORRIDOR STUDY AREA

THE RIVER

With its headwaters in Rocky Mountain National Park, the Cache la Poudre River flows through Poudre Canyon, exiting onto the Colorado high plains. Draining approximately 1,900 square miles and fed primarily by snowmelt, the river has peak flows generally during the month of June. Annual precipitation ranges from 13 inches at the eastern end of the river to over 25 inches in the mountains.

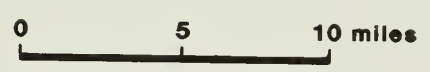
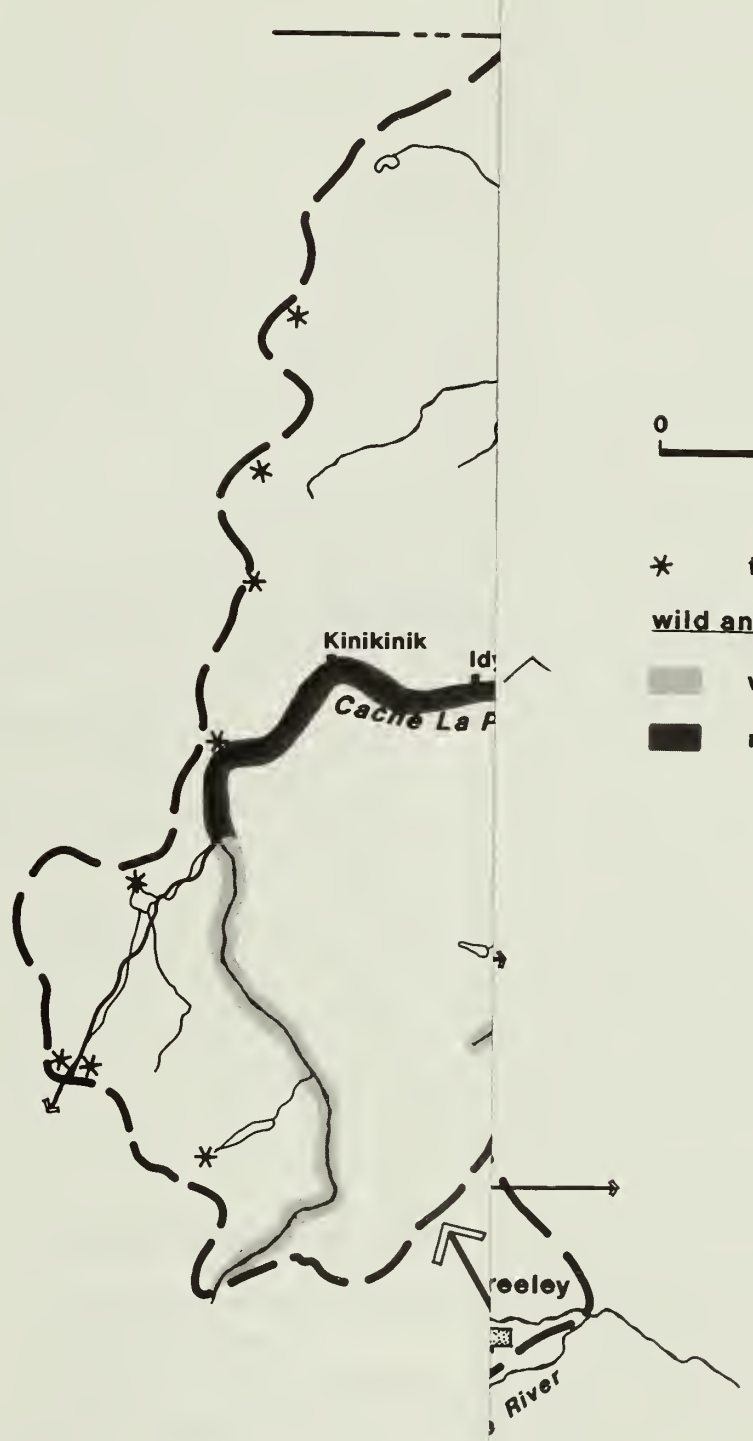
The upper reaches of the river (the South Fork and the Big South Fork) are in narrow canyons with rapidly flowing streams. The middle reaches are in a U-shaped glaciated canyon with a meandering, slow-moving stream in a pastoral setting. There is a narrow, rugged transition zone cutting through the front range rampart to the plains.

At the mouth of the canyon, the river changes from a mountain river to a plains river of the semi-arid West. It meanders for 35 miles through Larimer and Weld counties, joining the South Platte River near the city of Greeley. Along the river, stands of native cottonwood trees, willows and other riparian vegetation provide habitat for abundant wildlife. Fish populations are largely warm-water species, due to the river's low flow and other natural and human-modified characteristics.

The river has always been the region's lifeblood. Arapahoe, Northern Cheyenne, and Sioux Indians relied on the river for water, as a hunting ground, and as a landmark. For those who followed over time--early European explorers, trappers, fur traders, soldiers, and settlers--the river remained a major source of water and food, and served as a transportation route, linking the plains to the mountains' gold and silver and the surrounding region.

LARIMER COUNTY

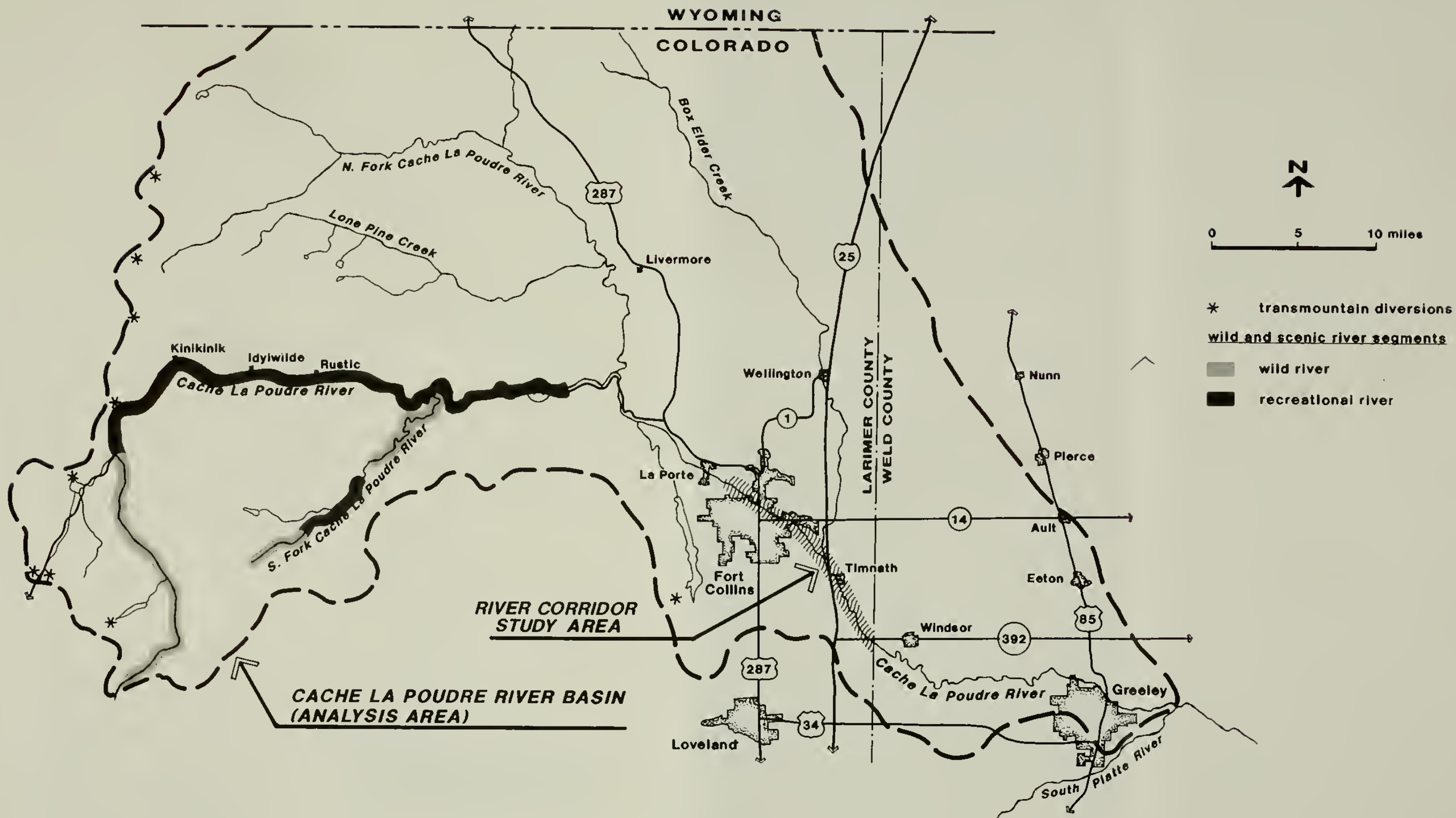
The basin and a portion of the study area are located in unincorporated Larimer County, a rural, sparsely populated area on the north central Colorado plains. Covering 2,600 square miles, Larimer County is bordered by Wyoming on the north and separated from Nebraska by only 45 miles to the northeast. A major interstate highway, I-25, traverses the county along a north-south line, passing directly through the study area and providing excellent interstate and intrastate access.



- * transmountain diversions
- wild and scenic river segments
- wild river
- recreational river

Cache La Poudre River Basin
 U.S. Department of the Interior
 National Park Service—Rocky Mountain Region

NASM | 80,000
 6/90 | RMRO



Cache La Poudre River Basin
 U.S. Department of the Interior
 National Park Service—Rocky Mountain Region

NASM | 80,000
 6/90 | RMRO



Irrigation-Related Resources ●

- A Parschall Flume & Dry Creek Dive
- B Old Waterworks
- C Diversion Dam for Multiple Head
- D Arthur Ditch Diversion Dam & He
- ⓔ Larimer & Weld Headgate
- F Josh Ames Diversion Dam & Hea
- ⓖ Lake Canal Diversion Dam & Hea
- H Coy Ditch Diversion Dam & Head
- I Timnath Reservoir Inlet
- J Chaffee Headgate
- K Great Western Sugar Effluent Flo
- L Boxelder Diversion

RIVER CORRIDOR STUDY AREA

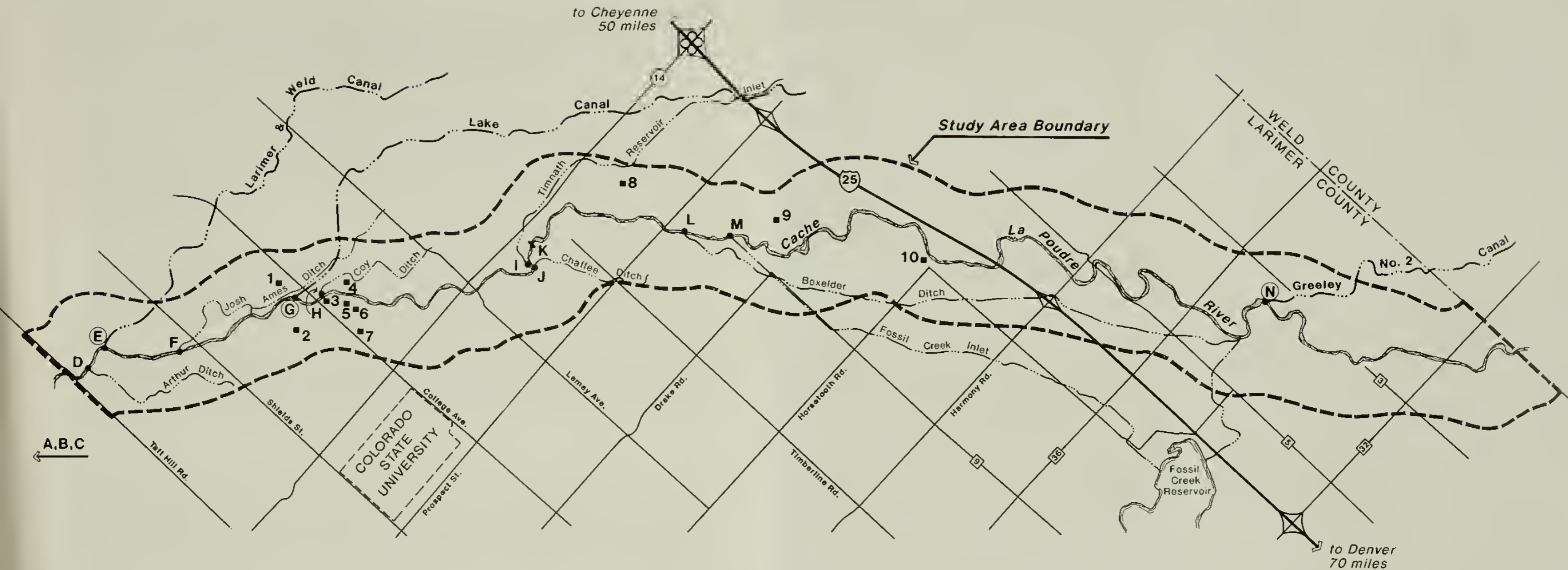
Cache La Poudre River Basin

U.S. Department of the Interior

National Park Service—Rocky Mountain Region

NASM	80,002
9/90	RMRO

* Note: Ci



Legend

Irrigation-Related Resources ●

- A Parschall Flume & Dry Creek Diversion
- B Old Waterworks
- C Diversion Dam for Multiple Headgates
- D Arthur Ditch Diversion Dam & Headgate
- ⓔ Larimer & Weld Headgate
- F Josh Ames Diversion Dam & Headgate
- ⓖ Lake Canal Diversion Dam & Headgate
- H Coy Ditch Diversion Dam & Headgate
- I Timnath Reservoir Inlet
- J Chaffee Headgate
- K Great Western Sugar Effluent Flume
- L Boxelder Diversion

M Fossil Creek Inlet

Ⓝ Greeley No. 2 Canal

Other Recreational & Cultural Resources ■

- 1 Legacy Park
- 2 Martinez Park
- 3 Power Plant
- 4 Gustav Swanson Nature Area
- 5 Old Fort Collins Heritage Park
- 6 Old Fort Site
- 7 Old Town Historic District
- 8 Riverbend Ponds Open Space
- 9 Northern Colorado Environmental Learning Center
- 10 Strauss Cabin

* Note: Circled areas are nationally significant.

RIVER CORRIDOR STUDY AREA

Cache La Poudre River Basin

U.S. Department of the Interior

National Park Service—Rocky Mountain Region

NASM 80,002
9/90 RMRO

West of I-25, the foothills of the Rocky Mountains divide Larimer County into two distinct climatic, topographic, and economic regions. The mountainous western region provides for ranching, natural resource-based industries, and outdoor recreation. It encompasses parts of Rocky Mountain National Park, as well as Roosevelt National Forest.

The eastern plains have a semi-arid environment, generally flat landscape, and an elevation of approximately 4,800 feet above sea level. They support extensive irrigated agriculture and a gravel industry. The foothills of the Rocky Mountains provide a dramatic visual backdrop to the eastern plains. The Poudre River is also an important landmark, as it was to early inhabitants. The cottonwood trees and thick riparian vegetation are visible for miles from many locations, unobstructed by the low profile of crops and native plains vegetation.

Following Larimer County's initial settlement by non-Indians, in the mid-1800s, population grew steadily, reaching over 178,000 in 1988, a fourfold increase since 1950. By 2010, population is projected to top 300,000. Population growth has been fueled not only by agriculture, but by strong gains in local trade, services, manufacturing, and public sector employment, including Colorado State University, located in Fort Collins.

The area's economic development is largely attributable to the high quality of life afforded residents, businesses and visitors through excellent educational, cultural, and recreational opportunities. Local government and civic organizations actively promote programs intended to maintain and enhance the community's quality of life.

CITY OF FORT COLLINS

Fort Collins, the only urban portion of the river corridor study area, is the largest of the major cities in Larimer County, the others being Loveland and Estes Park. Situated between the foothills of the Rocky Mountains and I-25, its population approached 88,000 in 1987. The majority of Larimer County's future growth is expected to be in or around the city. Today, Fort Collins is a regional trade center for portions of a three-state area.

In many ways, Fort Collins typifies the small western city of the semi-arid plains. Initially settled as a trade center, it was bolstered by the short-lived presence of Camp Collins, a U.S. Army fort. It was strengthened as a hub city when it became a stop on the Overland Stage Route and was linked with the expanding regional railroad network.

At first, Fort Collins developed along the river, then in a north-south direction along the base of the foothills. With the completion of I-25, commercial and industrial development spread in a finger-like fashion along the three arterials connecting to I-25 interchanges. Over time, infill residential development occurred, proceeding west to east.

Some of the brick buildings that housed the city's first commercial endeavors still exist in the older areas of town, interspersed with newer residential and commercial buildings. The Cache la Poudre River flows through the north edge of downtown Fort Collins. However, it lacks a visual or physical connection to the downtown area. Although this

area is historically significant as the site of the original fort and has recreation and urban design potential, the riverfront is primarily a mix of commercial and industrial uses with limited park and trail development. This area is receiving increasing attention from the city and private organizations.

RIVER CORRIDOR STUDY AREA

There are 6 parks and 8 open space or natural areas along the Poudre in the segment of the study area west of I-25 managed by the city. Lee Martinez Park, a 90-acre community facility just west of downtown, is the largest park located adjacent to the river. Riverbend Ponds, a 200-acre reclaimed gravel site, is the largest open space area in the study area. The Northern Colorado Environmental Learning Center (Colorado State University) encompasses more than 100 acres. It is complemented by the 10-acre Gustav Swanson Nature Area, owned by the city of Fort Collins, a unique wildlife area close to downtown. Old Fort Collins Heritage Park is also located near downtown. The Poudre River Trail is 8 miles long and extends from Taft Hill Road, at the west boundary of the study area, to the Northern Colorado Environmental Learning Center. The trail provides the major public access to the river.

The study area includes Strauss Cabin, a historic structure just west of I-25, which was built of hand-hewn logs by an early settler. The site was also a stop for the Overland Stage and is adjacent to what was a Cheyenne or Arapahoe Indian Council meeting site. The Old Power Plant on College Avenue has historic interest.

A cultural resources report prepared for the Poudre Basin Study Extension Review in 1988, concentrated on two potential dam sites a few miles upstream from the study area. Background research and inventory suggests that the region has been occupied at least intermittently for the past 10,000 to 12,000 years. Historic occupation and use of the area over the past two centuries or more can be documented archivally, although actual physical evidence of historic activities does not predate the 1880s. Most datable components were of the Late Prehistoric stage, or 2,000 years of age, or less. Historic sites consisted of homesteads, miscellaneous structural remnants, mines, canals, and a water filtration plant. Various historic themes were represented, including settlement, mining, reclamation, tourism/recreation, and transportation.

Most of the study area is privately owned, consisting of about 2,800 properties. Public ownership consists of 630 acres, most of which is existing parks and open space. Federal landownership is limited to a single 16-acre U.S. Forest Service parcel just northwest of downtown. Agriculture and gravel operations account for approximately 65 percent of the total acreage in the study area. Residential, commercial, and industrial development account for about 20 percent (2,200 acres) of the total, mainly west of I-25.

Public landownership in the area is expected to increase over time with the acquisition or donation of reclaimed gravel extraction areas and additional open space. In the future, it is likely that more land will be converted from agricultural to developed uses, as pressure for urban development increases.

ANALYSIS OF SIGNIFICANCE

The following analysis evaluates the resources located during this assessment relative to National Park Service criteria for national significance. It should be noted that a finding of National Register eligibility at the national level of significance is not equivalent to a finding of national significance relative to affiliation with the National Park System. The standards are similar, however, and overlap in some cases. Where possible, special resource studies should use the forms and procedures for National Historic Landmark (NHL) nominations to document national significance. Funding constraints precluded that in this case. The NHL nomination and review process must be completed before the NPS takes any official position on the national significance of the resources.

EVALUATION CRITERIA

The National Park Service *Management Policies* state that resources will be considered nationally significant if they meet all four of the following criteria:

- Is an outstanding example of a particular type of resource.
- It possesses exceptional value or quality in illustrating or interpreting the natural or cultural themes of our nation's heritage.
- It offers superlative opportunities for recreation, for public use and enjoyment, or for scientific study.
- It retains a high degree of integrity as a true, accurate, and relatively unspoiled example of the resource.

CACHE LA POUFRE RIVER BASIN

This study has concluded that resources of the Cache la Poudre River Basin are of national significance. This determination was based on findings contained in the following discussions.

The selected theme for this study is "The History of Water Law and Water Development in the Cache la Poudre River Basin and the Rocky Mountain West." Reconnaissance level analysis of the entire Cache la Poudre River Basin was conducted to place it in context with other river basins of the West, as it relates to the development of Colorado's distinctive legal system of water rights, known as the "Colorado Doctrine," within a national historical context. The historical context, summarized below and presented in full in appendix B, traces the legislation, constitutional provisions, and court decisions that established the Doctrine of Prior Appropriation in Colorado. It also identifies significant persons, events, and features associated with the evolution of water law in Colorado. The

context compares the Colorado Doctrine and its relationships with the Poudre River Basin to similar water development legal and legislative precedents in California, Utah, Wyoming, and other western states. It discusses whether Colorado's system possesses national significance in terms of the eventual abandonment of the system of riparian rights by western and Rocky Mountain states and the subsequent adoption of the new system or prior appropriation.

"The History of Water Law and Water Development in the Cache la Poudre River Basin and the Rocky Mountain West." (see appendix B). Very few streams tumble from the Rocky Mountain eastward to the Great Plains. This limited stream flow combined with a general lack of precipitation west of the 100th meridian initially hindered, and later greatly altered European agricultural settlement of the front range of Colorado. Cooperative programs of intensive irrigation were needed to water crops. Because the Cache la Poudre River was one of the first river basins to be intensively settled, irrigation projects set legal, legislative, and constitutional precedents, which would be adopted later by other semi-arid Rocky Mountain states.

Between 1870, when members of the Union Colony at Greeley dug their first canal, and 1882, when water rights conflicts were eventually resolved, the state of Colorado established a new doctrine of water law and system of water allocation. The Colorado System of water allocation is considered to be the foundation for water law in the intermountain region of the American West. Colorado was the first state not to implement the eastern-based doctrine of riparian right of surface waters and to establish prior appropriation as the exclusive right within its borders. The roots of this evolution in water allocation can be traced to early irrigation efforts within the Cache la Poudre River Basin.

In the area of the eastern United States where water is relatively abundant, water law is based on the Riparian Doctrine. This doctrine provided that all property owners along a body of water had an equal right to use the water. Because lands beyond the 100th meridian receive less than 15 inches of precipitation annually, this doctrine became impractical; there simply was not enough water for all users. In order to irrigate as much acreage as possible, the Doctrine of Prior Appropriation arose to allow the diversion of water away from riparian areas without the need to own the land adjacent to the stream bank. This doctrine is based on a rather simple concept: "First in time, first in right." The first individual, being a person, group, or corporation, who files for the water is the first in line to use this water. Within the Colorado System, water is considered to be public property. Individuals own the right to beneficially use the water. Water rights are considered to be just like any other form of private property; they can be assigned and mortgaged, and may not be taken by a government entity without just cause and without proper monetary compensation to the owner. Western states that use the Colorado System as the basis for their water allocation, protect water rights under the private property clauses of the constitution. What is now known as the Colorado System developed over time through a series of legal, legislative, and administrative steps gradually refined the Doctrine of Prior Appropriation.

Though the Cache la Poudre Valley had been settled and farmed since the early 1860s, large scale farming and the beginnings of irrigation within the Valley did not begin until

after 1870. When members of the Union Colony arrived, they immediately began planting crops and started a system of irrigation. By the end of the first year, 60,000 acres were under irrigated cultivation. In the fall of the same year, Union Colony members began constructing Colony Canal (Greeley No. 2). When completed, this canal had the capacity of 280 cubic feet per second. By 1874, two more canals were under construction in the Cache la Poudre Valley: the Lake Canal and the Larimer County Canal. John C. Abbott, a former Union Colony member, and Benjamin Eaton, later Governor of the state of Colorado, built the Lake Canal. Another former Union Colony member, R.A. Cameron, organized the Larimer County Land Improvement Company. This company's purpose was to supply irrigation water to Cameron's Ft. Collins Agricultural Colony, which was established in 1872. Both of these canals were upstream of the Union Colony Canal (Greeley No. 2). Though singularly each of these facilities diverted less water than the Union Canal No. 2, they had the combined capacity to divert the entire volume of the river, in years of low run-off, or late in the summer as the river's flow began to recede.

The combination of over-appropriation of the Cache la Poudre's waters and a drought during the summer of 1874 resulted in conflict between the communities of Ft. Collins and Greeley. Greeley area irrigators claimed a prior right to the waters of the Cache la Poudre and, historically, the Union Colony's canals predated the upstream diversions by more than two years. However, the Ft. Collins ditch operators could ignore the claims of the Greeley area farmers and deprive the downstream users of all water, if they so desired. By having their headgates located upstream of the Greeley area farmers, the Ft. Collins irrigators could divert the entire volume of the Poudre River and leave the downstream canals dry. Greeley area residents demanded recognition of their prior right, but had no legal means or institutions with which to prevent the Ft. Collins irrigators from appropriating all the water in the Poudre River. Nathan Meeker, the leader of the Union Colony, articulated the concerns of the Greeley area residents and sought a solution to the problems of allocation of water from the Poudre River. In an editorial to the *Greeley Tribune* on July 8, 1874, Meeker publicized the need to establish a supervisor for the Cache la Poudre River, to administer the allocation and division of all available waters, but only after the Ft. Collins water users recognized Greeley's prior right. While the principle of prior appropriation had been partially codified first by miners in California and later in the Colorado gold fields and the principle had been mentioned in the 1861 Colorado Territorial Laws, there was not any institution legally established to adjudicate claims involving priority of water rights. The local justice of the peace could appoint three commissioners to settle problems of water rights allocation whenever the situation necessitated, otherwise there was not an institution in Colorado Territory that solely existed to solve these water problems. At the suggestion of R.A. Cameron, superintendent of the Ft. Collins Agricultural Colony, both sides met on July 15, 1874, at a schoolhouse half-way between the two communities, in order to reach an agreement over the water in the Poudre River. Although no settlements were reached, the Ft. Collins group did consent to lower their headgates and release more water downstream. This meeting increased the desire of Poudre Valley residents to arrive at a more effective means of stream control.

The events of 1874 in the Cache la Poudre River Valley inspired more people, both inside and outside the valley, to take notice of the need to systemize the basis of State Water

Law when writing the Colorado Constitution in 1876. While the events of the 1874 problems in the Poudre Valley were well publicized, the same basic problems existed throughout the territory. Problems resulting from the inability of local governmental entities to solve water rights disputes using the 1861 Territorial Water Laws illustrated the need to improve the administrative foundations of water law in the new constitution. David S. Plumb of Weld County chaired the committee, which oversaw the incorporation of water language into the state constitution. With regard to water doctrine, language in the state constitution was kept short; the constitution incorporated the concept of priority of appropriation as the basis of state water law. The new constitution only briefly mentioned that the state might have to pass and amend legislation affecting water in the state of Colorado.

By 1878, Benjamin Eaton began construction of another canal to take water from the Poudre. According to noted historian Robert Dunbar, the Larimer and Weld Canal, with a capacity of 720 cubic feet per second, was the single biggest event "to provoke the formulation of the Colorado System." This canal, constructed upstream from all existing canals, had the potential to divert all water from the Poudre in years of low-volume runoff, leaving all the downstream canals dry. The threat of further over-appropriation of water in the Poudre River continued to make a grave situation even worse. In response to this situation, Poudre Valley residents J. L. Brush and Silas Haynes called a meeting of farmers and irrigators from the Poudre Valley, along with some representatives from the nearby St. Vrain Valley. They hoped to discuss the possibility of effecting legislation at the next session of the Colorado General Assembly. The situation in the Poudre Valley showed the need to create permanent institutions within state government that would adjudicate and allocate water use in Colorado. Proposed elements to be included in the legislation were: the creation of a state irrigation bureau headed by a state official, the division of the state into water districts, measurement of all stream flows within the state of Colorado, and to clarify, through legislation, the meaning of "prior appropriation" in the state constitution. Though attendance at the meeting was low, the agenda created for the meeting became "the embryo of the Colorado System of Water allocation."

A state law passed in 1879 created a state water court to adjudicate questions of priorities, and divided the state into divisions based on geographic locale. Each division established would be controlled by a commissioner who would gather information concerning water appropriations for the state water court, and administer the river basins within his division.

However, following the passage of the 1879 law, incidents in the Poudre Valley again contributed to the necessity to revise Colorado's irrigation laws. With 1879 being another drought year and the possibility of this continuing through 1880, the communities of Fort Collins and Greeley resumed fighting over the available water. The courts had yet to decide which community had the prior claim to appropriate water from the river. The 1881 Water Law, passed through the effort of Poudre Valley legislative representatives, established both a state engineer and a system to be used for the measurement of streams. The state engineer would coordinate among the water districts and be responsible for all stream measurements.

In shaping the Colorado System, three court cases from the period or shortly thereafter helped to define the earlier legislative efforts. One legally guaranteed the irrigator the right-of-way across other peoples' property for the building and maintenance of his facility. Another mandated that Prior Appropriation would be the doctrine of water law since "the climate invoked the imperative necessity for artificial irrigation to be applied to the soil." The third decided that domestic needs outweigh agricultural needs, which in turn outweigh manufacturing end uses.

In contrast to the Colorado System, three other water systems are used in the American West: the California System, the Mormon or Utah System, and the New Mexican Water System. Of these systems, only the California System is used to any great extent in the West. Both Utah and New Mexico eventually adopted the Colorado System as their dominant form of water allocation, as did the other western mountain states.

As farmers pushed into new areas of the front range and as towns grew into cities, they continued to demand more water from the Cache la Poudre Basin. The search for additional water soon took them beyond the geographic confines of the Poudre Valley and brought them into conflict with other states. By 1922, water was being diverted through transmountain diversions from the Laramie River into the Cache la Poudre River drainage. Interstate concerns of water allocation have since been codified through various interstate river compacts that allocate and divide water in interstate river drainages. States that store water in Bureau of Reclamation projects, for example, not only must divide water among water users within that state, but also must supply set water quantities to downstream users in other states, in compliance with interstate compacts.

In conclusion, from the context of the development of water-related institutions in the American West, the Colorado doctrine of water allocation possesses national significance. The legislation, constitutional provisions, and court decisions associated with Colorado's system of water management can in large measure be traced to historical events and resources within the Cache la Poudre River Basin. Eventually, all the semi-arid mountainous states, including Alaska, followed Colorado's lead in water allocation.

Comparison to Criteria for National Significance

1. "It is an outstanding example of a particular type of resource."

The historical context summarized above was determined to have national significance. Resources in the basin related to this context appear to be outstanding examples of this type of resource. The Grand Ditch, a transmountain diversion in Rocky Mountain National Park that brings water from the Colorado River basin to the Poudre River at Poudre Pass, is listed on the National Register of Historic Places. The Colorado-Big Thompson Project was a precedent-setting diversion, also from the Colorado River drainage. Other diversions, some built in the late 19th and early 20th centuries, bring water from the Laramie River or the Michigan River drainages. Two canals within the study area have been declared eligible for listing on the National Register of Historic Places. A third was identified as being potentially eligible.

2. *"It possesses exceptional value or quality in illustrating or interpreting the natural or cultural themes of our nation's heritage."*

Water is an undercurrent in day-to-day life in the West. During times of drought, or when population has grown beyond water treatment capacity, water management becomes an even more active issue for the average citizen. The Poudre Basin offers an opportunity for the public to see where their water comes from, how the natural environment has been altered to accommodate the human need for water, and to hear the story of how law and legislation in Colorado affected the use of water throughout the West. One example of the interesting aspects of the story that can be told is the role of the ditchriders who work for the ditch companies and the water commissioners who work for the state engineer, administering the complex system of water rights, allocation, and exchanges.

3. *"It offers superlative opportunities for recreation, public use and enjoyment, or for scientific study."*

Active interpretation of water management would add another item of interest to the many recreational and educational opportunities that already exist in the Poudre Basin. Interpretation of the stated theme in nearby natural settings of the river basin provides superlative opportunities for education and recreation.

4. *"It retains a high degree of integrity as a true, accurate, and relatively unspoiled example of a resource."*

A contributing factor to the significance of the Poudre Basin water management structures, besides their relationship to the nationally significant episodes described in the historical context, is that there is a "complete set" of features: surface and subsurface transmountain diversions; diversion dams and headgates with associated chart houses, sand clean-outs, and similar features; canals and ditches; siphons; reservoirs; flumes; and returns to the river. The system, as it was originally built and then modified and expanded to accommodate changes in technology and need, is still in place and working.

RIVER CORRIDOR STUDY AREA

NPS Management Policies require that a resource meet all four of the previously described criteria before it can be deemed nationally significant. As illustrated in the following, resources within the river corridor study area do not meet all four criteria and therefore cannot be considered nationally significant.

A 1990 reconnaissance level historic sites survey identified 10 historic resources (see appendix A) within the river corridor study area related to the historic context developed for the basin, "The History of Water Law and Water Development in the Cache la Poudre River Basin and the Rocky Mountain West." Three of the more significant resources are: 1.) The Diversion Dam and Headgate of the Larimer and Weld Canal, 2) The Diversion Dam and Headgate of the Lake Canal, and 3) The Diversion Dam and Headgate of the Greeley Canal (Union Colony Number 2). Two of these (Larimer and Weld Canal and Greeley Number 2) have been determined to be eligible for listing on the National Register

of Historic Places. The third (Lake Canal) has not been formally evaluated. All three resources appear to possess sufficient characteristics to qualify for NHL status.

Other irrigation-related resources within the study area that do not appear to meet national register criteria for significance are:

- Josh Ames Diversion Ditch
- Arthur Diversion and Ditch
- Timnath Reservoir Inlet and Diversion
- Coy Ditch and Diversion
- Chaffee Headgate and Canal
- Fossil Creek Inlet
- Boxelder Ditch

Comparison to Standards for National Significance

1. *"It is an outstanding example of a particular type of resource."*

Two resources within the study area (Larimer and Weld, and Greeley Number 2 canals) have been determined to be eligible for listing on the national register. A third, Lake Canal appears to qualify. These three canals appear to meet NHL criteria.

2. *"It possesses exceptional value or quality in illustrating or interpreting the natural or cultural themes of our Nation's heritage."*

The irrigation-related resources within the river corridor study area are incomplete and do not represent the entire spectrum of uses associated with the stated theme. Without this entire spectrum of resources, the river corridor study area does not meet this criteria.

3. *"It offers superlative opportunities for recreation, public use and enjoyment, or for scientific study."*

Recreational opportunities within the river corridor study area are commonly found along many river corridors running through urban areas. In Denver, for example, the Highline Canal Trail runs for approximately 70 miles from Chatfield Reservoir through the Denver metropolitan area. Two of the significant irrigation-related resources found within the Poudre River study area are inaccessible to the public due to ownership: the diversion dams and headgates for the Larimer Weld Canal and the Greeley No. 2 Canal are on private property, but those of the Lake Canal are located within Legacy Park and can be easily reached.

4. *"It retains a high degree of integrity as a true, accurate, and relatively unspoiled example of a resource."*

The location and setting of the resources within the study area are true and accurate, but the fabric and design are not. Many of the structures were replaced or had major repairs after high water in 1983. There was also apparently a major replacement effort in the

mid-1960s. Furthermore, only small portions of the ditches and canals are included in the study area, while the features themselves extend for many miles to reservoirs or other termini.

MANAGEMENT OPPORTUNITIES

BASIS FOR MANAGEMENT

Before developing management opportunities and options, the study team discussed objectives for the present effort, which have been stated in various forms before and during the study, and reviewed experiences with similar types of efforts in other parts of the country. The impetus to obtain special recognition and designation for the Poudre River study area appears to be based on attempts to achieve the following objectives.

- Recognize the story and its resources. This includes resources related to themes beyond water law, and locally significant history illustrating evolution of the social landscape made possible by water management.
- Interpret the resources to educate the public on the importance of water in the West, water law history and the role of the Poudre River in that history, and water conservation.
- Preserve resources related to the story for recognition and interpretation.
- Improve river management for public use and enjoyment, through local control.
- Enhance the quality of life in the Fort Collins area, through recreational opportunities, tourism and associated economic development, and appreciation of the significance of local history.

Whatever management entity for preservation and interpretation of the Poudre River's working river heritage emerges, it must be powerful enough and have the means necessary to ensure the effective preservation of the resources crucial to the project, and to develop and manage a comprehensive interpretive and educational program. Based on similar efforts, it appears that there are some necessary elements for success.

Focus. There must be resources to preserve and interpret for the public benefit and enjoyment. The scope of which resources are relevant must be clearly defined.

Catalyst - Advocate. A single individual must be identified to carry the banner, and act on behalf of the resources and the organization supporting them.

Funding. The management entity must have access to sufficient funding and staff to accomplish its goals, including an identified maintenance source that increases as areas or interpretive elements are added to the program.

Partnerships. The management entity must be able to cut across all levels of government and the private sector to work together cooperatively and productively and to leverage resources for the implementation of the project.

Clear Agenda. Objectives must be clearly defined and agreed upon.

A Plan. A general management plan is needed to define goals and objectives for visitor use and resource protection as well as primary interpretive themes. Based on objectives, the plan would then propose specific development, funding, and implementation strategies.

Annual Work Plans. Work plans are needed to identify elements of the management plan that can be accomplished on an annual basis.

Evaluation. Effort must be made to assess progress and to assure that objectives and plans continue to be current and relevant.

NATIONAL PARK SYSTEM AFFILIATION

Although results of the resource assessment indicate that the river corridor study area does not meet the test for national significance in its present form, there are opportunities for affiliation. The area under consideration must be expanded to include additional types of resources, selected because of a combination of their significance related to the overall story of water management in the Poudre Basin and their suitability for a quality educational visitor experience. The study team concluded that the story of the Poudre River as a "Working River" is an interesting and important one. However, the river corridor itself, as defined for this study, is a very small area, precluding adequate representation of related resources. For example, the transmountain diversions were not included, nor were the reservoirs that not only store water but also make it possible to administer the complex system of allocations and exchanges. In addition, themes beyond the historical context could be developed that would facilitate interpretation not directly related to the development of western water law but associated with water uses in the West. This would encourage use and preservation of such structures as the Old Power Plant and the Old Waterworks, and would also permit incorporation of the important environmental conservation stories that are already being developed through the Northern Colorado Environmental Learning Center.

If the city and other local entities decide to proceed toward National Park System affiliation, careful definition of the federal role in the effort is necessary. This role would be defined through a study of alternatives or action plan that is usually prepared as a prerequisite to legislation. It appears the NPS role in the Cache la Poudre would be technical assistance for planning, design and management. This may include special NPS expertise in interpretation and management of visitor use. Whatever organization materializes for long-term development and management of the area, it would have responsibility to meet the criteria of suitability and feasibility, which are:

- Need some special recognition or technical assistance beyond what is available through existing NPS programs,
- Document that a cooperative relationship with the NPS and contributions from other sources will be adequate to assure long-term protection of the resources,
- Be able to establish and continue a standard of maintenance, operations, public service, and financial accountability consistent with the requirements applicable to National Park System units.

The scope of consideration should be expanded. Changing the name from "National Heritage Corridor" to "National Water Heritage Project" would provide a basis for interpreting a wider range of resources from both a geographic and a chronological point of view.

When more specific information is available regarding the location and types of resources that are directly and indirectly related to the historical context, some logical identification can be made of potential sites for inclusion within a Water Heritage Project. In addition to a historic river corridor, a larger array of historic resources and cultural landscapes would enable the entire story of water development in the Poudre Basin to be told. The most basic elements required to tell the history might include diversion dams, headgates, canals, laterals and the historic farmlands that these engineering structures irrigated. In order for the visitor to appreciate this evolution they must be able to visit additional types of resources:

- The point of delivery, possibly on a farm, where the water is applied to crops, or where the water is treated for human consumption, or where it generates power.
- A reservoir, where water is stored until needed, and where water rights are exchanged.
- A transmountain diversion, where water is artificially channeled from one drainage to augment over-appropriated water in another.

These should be selected based in a combination of their significance related to the overall story of water management in the Poudre Basin and their suitability for a pleasant visitor experience.

Under this concept there should be a visitor orientation or focal point, perhaps a centrally located visitor center, where the basic story can be told and where the visitors can plan their trip and determine the level of experience they are seeking. This point could provide books, maps, brochures, videos, presentations, and other information not only to help the visitors learn more about water in the West, but also to guide them to sites in the basin. Facilities in the basin that could be developed include interpretive waysides, pull-outs, and parking.

The theme of Water in the West is underrepresented in the National Park System, and has national significance in westward expansion. Therefore, it appears the National Park Service would be a logical federal partner, should this endeavor be pursued by local entities.

OTHER MANAGEMENT OPTIONS

There are alternatives to affiliation that can serve as the basis for resource preservation, public use, enjoyment, and education. This section examines different approaches to management that could accomplish the above objectives.

Option 1. Project Coordinated by the NRA Task Force or a Similar Entity

This would continue existing conditions. An expanded task force or a similar coalition of individuals would set policy and direction. Action would be the result of individual members of the coalition working through their own organizations (state, county, city, private corporations) to accomplish objectives. The success of this task force or committee would depend upon its ability to organize influential forces in the Fort Collins area, to raise funds and generate other types of support such as technical assistance, and to identify and remove through cooperative effort some of the obstacles faced by agencies and organizations trying to implement action items. The task force would rely on the volunteer effort of its members, although one of its primary sources of support would be the time, effort, and expertise of existing private and governmental organizations.

Option 2. Non-Profit Corporation Established

A separate organization such as a non-profit corporation could provide importance and identity for the project. This would be a corporation with 501(c)3 status. A citizen-based organization could also be created as an auxiliary to some of the other types of organizations listed here. It could be quasi-governmental, similar to the Greenway Foundation in Denver, or Green Springs, Inc., in Green Springs, VA. It could also be a private non-profit organization similar to Colorado Mountain Club or Volunteers for Outdoor Colorado, with an organizational structure including a general membership, a board of directors, advisory board, and committees. The board of directors would be a working group, setting policy and direction. Advisory board members would be high-profile community leaders from various public and private sectors that would lend their expertise and influence on an as-needed basis. It would be structured to cut across governmental and organizational boundaries to leverage capabilities of private, public, and corporate entities. The ability to conduct such functions as ownership of conservation easements should be included in the charter. A management plan and action plan would be developed. Action would be the result of individual members or committees working through various organizations to accomplish objectives.

The success of this corporation would lie in its ability to attract and organize influential forces in the Fort Collins and Poudre Basin area, to raise funds, and to identify and remove through cooperative effort, some of the obstacles faced by agencies and

organizations trying to implement action items. Although this organization would primarily rely on the volunteer effort of its members, most with other full-time jobs, it would require sufficient funding to support a staff that could dedicated full time to oversight and coordination of implementation of its plans. Funding would come from private contributions. Other types of support such as certain types of development and technical assistance could be provided by existing federal, state, and local governments and organizations.

Option 3. State Commission

Through the enactment of state legislation, a state commission could be established and staffed to oversee the management of the Poudre River Heritage Project. The commission would represent a range of different levels of government and members of the private sector. The state would be the primary public funding source for the project, but the federal government could contribute funding from existing federal programs for specific qualifying projects if such funds were available. Major funding would be expected from the private sector. The NPS could provide technical assistance, support the project, and participate as a member of the commission. The state commission would be able to direct the project according to state priorities, which should be beneficial to local residents. However, this option would be difficult to implement based on the current limitations of state funds and the lack of access to new avenues for federal funding.

There is already a mechanism in Colorado for state involvement with river corridors, and this might eliminate the necessity for specific legislation for a Poudre-related commission. The Colorado Department of Parks and Recreation, operating under enabling legislation, is the lead agency in the Colorado Riverfront Commission. This effort, working on the Colorado River corridor through Grand Junction, has goals similar to those presented by the Poudre River effort. The legislation establishing this type of Commission permits the state to enter into agreements with other agencies. Colorado Parks and Recreation is also involved with state parks, recreation areas, and natural areas.

Option 4. Federal Commission

A federal commission without NPS affiliation is an option. It could be structured in a fashion similar to commissions in other areas that are affiliated with the National Park System, but the National Park Service would not be a primary partner. Establishment of a federal commission would require federal legislation. The commission would represent a range of different levels of government and the private sector. It would have its own professional staff to accomplish its mission. The commission could receive funds through federal appropriations, which could be specifically matched by nonfederal funds.

OTHER PLANS AND STUDIES

Actions should be taken to provide recognition, and to assure access to existing expertise and programs. First a National Historic Landmark theme study of the entire Poudre River Basin would be helpful to provide an in-depth inventory of related resources.

Additional resources should be evaluated for listing on other registers. Some that appear to qualify for listing on the National Register of Historic Places have not been formally evaluated. Others that are locally significant could be designated as local landmarks or districts. National Register listing designates those places worthy of preservation; it provides recognition only. However, National Register status is required for access to many federal and state programs. Designations at a lower than nationally significant level can still facilitate access to expertise and programs beyond those available from the National Park Service. Also, resources that are not integrally related to the Water Law theme, but that help interpret the Working River story could more easily receive recognition outside the stringent requirements of an NHL designation.

A study of alternatives or action plan is usually prepared to identify and evaluate management structures, development alternatives, and costs of operations for preserving, interpreting, and managing an area. For the most part, these studies provide the basis for developing legislation, and many times are a prerequisite to legislation. The action plan prepared for the American Industrial Heritage Project (AIHP) provided essential elements for its legislation and successful implementation. Much of the information needed for this type of study has already been generated.

ASSISTANCE AVAILABLE THROUGH EXISTING PROGRAMS

FEDERAL

National Park Service

The History Division of the Washington Office of the National Park Service would be the logical organization to conduct an NHL study. This would provide a more in-depth and authoritative assessment of resources, and provide a basis for developing interpretive and preservation plans. Sometimes, a special study can be contracted through the Rocky Mountain Region Division of Cultural Resources, Branch of National Preservation Programs; the results of this special study could then easily be upgraded to an NHL theme study. Historic Preservation Fund grants can be channeled through this branch. NHL status is required before additional, hands-on technical assistance, such as advice on preservation techniques, can be provided by the Branch of National Preservation Programs.

Should this area become affiliated with the National Park System, the Branch of Planning in the Division of Planning and Compliance, and the Division of Interpretation could provide advice and assistance in development and implementation of management, facilities, and interpretive plans.

The Branch of Rivers and Trails, in the Division of Grants and Assistance, provides expertise in bikepath and river corridor planning and management. In the same division,

the Land and Water Conservation Fund program supports recreation through both financial and technical support. NPS affiliation is not required for their assistance.

Other Federal Agencies

Other Federal agencies might be able to participate in this effort, even if the area is designated as an affiliate. For example, the U.S. Forest Service would need to be involved if planning, preservation, and interpretation include sites within the lands it manages. Some technical and financial support could be available from the Forest Service, as well. The Bureau of Reclamation may be able to participate in inventory and evaluation of reclamation resources such as the Colorado-Big Thompson project and certain diversion structures along the Poudre River.

STATE OF COLORADO

The State Historic Preservation Office (SHPO) can provide Historic Preservation Fund grants to assist with survey and inventory, and with acquisition and development. The SHPO also administers the Tax Act program. Incentives are available via their easement program. The State is the source of most "how-to" assistance for preservation projects.

Colorado State University (CSU), already a participant in this effort, can provide support through studies, educational programs, and interpretation. Many of the studies needed to fully develop a program could be accomplished through student projects.

The State Department of Parks and Recreation provides access to state lottery funds for capital improvements. This department is also the source of a large pool of expertise in facilities planning and development on an interagency level.

CITIES AND COUNTIES

The city of Fort Collins and Larimer County have demonstrated their ability to use in-house expertise to tap technical assistance and funding sources in their own and other agencies. Their participation, and those of other cities and counties that may become associated with this effort, is critical for the continued success of the project. Local programs can provide a foundation for much of the work needed to accomplish any plan that will be developed, and the plan must be compatible with related plans in place at the local level.

PRIVATE ENTERPRISE, ORGANIZATIONS, AND INDIVIDUALS

A major facet of the story of the Development of Water Law in the Poudre River Valley is that it was based on the actions of private enterprise. Corporations and professional groups such as ditch companies and water lawyers would be logical supporters for a Water Heritage Project. Gravel companies might be interested in funding a study of the

industry, to add to the interpretive potential. Civic groups and other corporations would be potential sources of support simply because the river basin contributes significantly to the high quality of life in the Fort Collins and Greeley region. Existing non-profit groups such as amateur archeological and historical societies, and Volunteers for Outdoor Colorado, are valuable sources of energy, expertise, and support.

CONCLUSIONS

- The present proposal for a National Heritage Corridor along the 18.5-mile river corridor does not contain resources that meet the test of national significance.
- Some resources in the Poudre River Basin are of national significance.
- A National Heritage designation and affiliation with the National Park System could be pursued if the scope of the project were expanded to include a variety of resources that meet the test of national significance.
- If the project sponsors would like to pursue a national designation and National Park affiliation, a "Study of Alternatives" should be prepared. This study would evaluate management options, roles of various entities, impacts, and approximate development and operational costs associated with each management option. This step usually entails public involvement and may require preparation of an Environmental Assessment or Environmental Impact Statement. A "Study of Alternatives" can be completed in 12 to 18 months at a cost of \$125,000 to \$200,000.

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APPENDIX A

SUMMARY OF ON-RIVER IRRIGATION FEATURES

FEATURE	NAME	DESCRIPTION	SIGNIF?	OWNER	ACCESS
A	Parschall Flume and Dry Creek Diversion (Jackson Ditch)	Building where experiments on developing P. flume took place, and experimental flume. Visible from bridge. Outside study area.	Possible	Private	Possibly from fish hatchery
B	Old Waterworks	Dates from 1865. Partly restored. Outbuildings for caretaker (cottage, coops, other outbuildings) in good shape. Nice place for a park. Outside study area.	Probably	City of Fort Collins	Yes
C	Multiple Diversion/Headgates/Chart-houses>Returns (Little Cache, New Mercer, Larimer #2 Wooden Flume return from Pleasant Valley Ditch, Agricultural User)	On south side of river, has numerous features with a lot of interpretive potential. Some old stone remains of earlier headgates. Outside study area.	Too new?	Private (Brinks)	Abandoned railroad
D	Arthur Ditch Lowhead Dam & Headgate	New. Concrete. "Flapper" style gate.	Too new.	Private (Gravel Company)	None

FEATURE	NAME	DESCRIPTION	SIGNIF?	OWNER	ACCESS
E	Larimer & Weld Canal	Largest decree in system (751 cfs). Chart houses to canal, to river. Gatehouse. Spillway. Radial arm dam gates. Sand clean-out. Ditchrider on-site. Dangerous place for visitors.	Eligible	Private (Ditch Company)	Road
F	Josh Ames Headgate	Looks new, but is for abandoned ditch. Great Western Sugar was primary user. Ditch runs past Legacy Park; potential for interpretation with Lake Canal diversion/headgate. Overgrown with wetlands vegetation.	No	City of Fort Collins	Visible from bikepath
G	Lake Canal Diversion Dam & Headgate	Ashlar stone with sandstone capstones. Exposed aggregate concrete. Iron pipe wire with concrete bridge across. Electric motor gate opener. Should be evaluated for N.R.--archit. signif/integrity, poss. contribs. to district, maybe over 50 years old. Good interp. potential, except missing some irrig. features typical chart house, return, flume).	Possible	City of Fort Collins	Road to Legacy Park

FEATURE	NAME	DESCRIPTION	SIGNIF?	OWNER	ACCESS
H	Coy Ditch Diversion Dam & Headgate	Some sandstone at base, headgate area. Diversion has canoe chute & dysfunctional fish ladder. On north side of river, directly across from Old Power Plant. Primary user of Coy Ditch is Link 'n Greens Golf Course. Goes underground & resurfaces.	No	Private	Visible from Old Power Plant
I	Timnath Reservoir Inlet (Tim. Res. same as Cache la Poudre Res., rebuilt in 1978, per ditchrider)	Headgate is at north end of diversion dam that is shared with Chaffee Ditch. Most of ditch rebuilt mid-60s. Some stones left beneath & behind cement.	Prob. Not	??	Visible from near bikepath
J	Chaffee Headgate	Ditch abandoned. Headgate partially destroyed, probably during '83 high water. Difficult to trace ditch away from headgate. Originally only about 6 agricultural users.	No	City of Fort Collins	Possible from bikepath
K	Great Western Sugar Effluent Flume	Suspension structure w/concrete pylons, metal open-top flume filled with dried effluent.	Possible	?? City of Fort Collins	From Bikepath

FEATURE	NAME	DESCRIPTION	SIGNIF?	OWNER	ACCESS
L	Boxelder Diversion	Channel without headgate on south side of river. Much broken concrete just below diversion. Headgate and charthouse several yards down the diverted channel.	No	City of Fort Collins	From Bikepath via NCELC
M	Fossil Creek Inlet	New, fancy, with 3 cantilevered gates--2 on ditch, 1 on river return.	No	CSU	Northern Colorado Env. Ed. Center via bikepath

APPENDIX B

HISTORICAL CONTEXT

The History of Water Law and Water Development in the Cache la Poudre River Basin and the Rocky Mountain West

"In studying the agricultural capacity of the vast Rocky Mountain region and broad plains of the West, and calculating the probable development of the same, it is necessary to lay aside, to a great extent, all our ideas of agriculture based upon experience in the States. For not only are the physical aspects of this portion of the West so different from the east half of our country as to strike the most superficial observer, but the climate is almost completely reversed, the thermometric and hygrometric conditions bearing no such relations to vegetation there as here."--Cyrus Thomas

INTRODUCTION

Very few streams tumble from the Rocky Mountains eastward to the undulating hills of the Great Plains. This limited stream flow, in combination with a general lack of precipitation initially hindered and later greatly altered Anglo-American agricultural settlement of the front range of Colorado. Here, traditional ways of farming broke down as settlers were forced, of environmental necessity, to adopt cooperative programs of intensive irrigation to water their crops. Because the Cache la Poudre River was one of the first river basins to be intensively settled, successful irrigation projects here set legal, legislative, and constitutional precedents, which would be adopted later by most other western states.

Between 1870, when members of the Union Colony at Greeley dug their first canal, and 1882, when water rights conflicts were eventually resolved, the state of Colorado established a new doctrine of water law and system of water allocation. Historically predicated on three components, legislative, legal, and constitutional, the Colorado System of Water Allocation is considered to be the foundation for water law in the intermountain region of the American West. Colorado was the first state to abandon the eastern-based doctrine of riparian right of surface waters and to establish prior appropriation as the exclusive right within its borders. The roots of this evolution in water allocation can be traced to early irrigation efforts within the Cache la Poudre River Basin.

HISTORIC BACKGROUND

Since most of the early arrivals to the Cache la Poudre Valley came from eastern farming backgrounds, they arrived with some knowledge of water law and irrigation practices. In the areas of the eastern United States, where water is relatively abundant, water law is based on the Riparian Doctrine. This doctrine limits water use to the lands adjacent to a body of water, either a stream, river, or lake. Individuals who own these lands are the only ones entitled to use the water for irrigation. Under the Riparian Doctrine, water had to be returned to the stream bed in order to insure an adequate supply necessary for water power or navigation. Under the provisions of English common law, water is considered to be public property and only those owning land adjacent to a watercourse are entitled to reasonably make use of the water.¹ After arriving in the Poudre Valley, settlers found the practices of the Riparian Doctrine did not work in the semi-arid environment. The Riparian Doctrine was impractical for the lands existing beyond the 100th meridian, a longitudinal demarcation that runs from North Dakota to Texas.² On the average, lands west of this meridian receive less than 15 inches of precipitation annually. The settlers realized that most land needed to be irrigated in order to adequately grow crops. If they continued to follow the Riparian Doctrine, then only lands adjacent to rivers and streams would benefit from irrigation. In order to irrigate as much acreage as possible, the Riparian Doctrine would have to be abandoned in favor of a doctrine that allowed water to be diverted away from riparian lands.³ The Doctrine of Prior Appropriation arose out of the need to divert water away from riparian areas without the need to own the land adjacent to the stream bank.⁴ This ended the tenet of appurtenance of the Riparian Doctrine, which tied the ownership of land to the ownership of water rights. According to Walter Prescott Webb in *The Great Plains*, this was an example of "environmental determinism;"⁵ here, the settlers of the Cache la Poudre Valley abandoned previously used institutions in favor of developing new, more practical institutions, which resulted from their adaptation to a new environment.

Though the Cache la Poudre Valley had been settled and farmed since the early 1860s, large-scale farming and the beginnings of irrigation within the valley did not begin until after 1870. When members of the Union Colony arrived, they immediately began planting crops and started a system of irrigation. By the end of the first year, 60,000 acres were under irrigated cultivation.⁶ In the fall of the same year, Union Colony members began constructing Colony Canal (Greeley) No. 2. When completed, this canal had the capacity of 280 cubic feet per second.⁷ By 1874, two more canals were under construction in the Cache la Poudre Valley: the Lake Canal and the Larimer County Canal. John C. Abbott, a former Union Colony member, and Benjamin Eaton, later Governor of the State of Colorado, built the Lake Canal. Another former Union Colony member, R.A. Cameron, organized the Larimer County Land Improvement Company. This company's purpose was to supply irrigation water to Cameron's Ft. Collins Agricultural Colony, which was established in 1872. Both of these canals were upstream of the Union Colony Canal (Greeley) No. 2. Though each of these facilities diverted less water than the Union Canal No. 2, they had the combined capacity to divert the entire volume of the river, in years of low run-off or late in the summer, as the river's flow began to recede.

CONFLICT OVER THE POUFRE

The combination of over-appropriation of the Cache la Poudre's waters and a drought during the summer of 1874, resulted in conflict between the communities of Ft. Collins and Greeley. Greeley area irrigators claimed a prior right to the waters of the Cache la Poudre and, historically, the Union Colony's canals predated the upstream diversions by more than two years. However, the Ft. Collins ditch operators could ignore the claims of the Greeley area farmers and deprive the downstream users of all water if they so desired.⁸ By having their headgates located upstream of the Greeley area farmers, the Ft. Collins irrigators could divert the entire volume of the Poudre River and leave the downstream canals dry. Greeley area residents demanded recognition of their prior right, but had no legal means or institutions with which to prevent the Ft. Collins irrigators from appropriating all the water in the Poudre River. Nathan Meeker, the leader of the Union Colony, articulated the concerns of the Greeley area residents and sought a solution to the problems of allocation of water from the Poudre River. In an editorial to the *Greeley Tribune* on July 8, 1874, Meeker publicized the need to establish a supervisor for the Cache la Poudre River, to administer the allocation and division of all available waters, but only after the Ft. Collins water users recognized Greeley's prior right.⁹ While the principle of prior appropriation had been partially codified, first by miners in California and later in the Colorado gold fields, and the principle had been mentioned in the 1861 Colorado Territorial Laws, there was not any institution legally established to adjudicate claims involving priority of water rights. The local justice of the peace could appoint three commissioners to settle problems of water rights allocation whenever the situation necessitated, otherwise there was not an institution in Colorado Territory that solely existed to solve these water problems.¹⁰ At the suggestion of R.A. Cameron, superintendent of the Ft. Collins Agricultural Colony, both sides met on July 15, 1874, at a schoolhouse half-way between the two communities in order to reach an agreement over the water in the Poudre River. Although no settlements were reached, the Ft. Collins group consented to lower their headgates and release more water downstream. This meeting increased the desire of Poudre Valley residents to arrive at a more effective means of stream control.¹¹

The events of 1874 in the Cache la Poudre River Valley forced more people, both inside and outside the valley, to recognize the need to systemize State Water Law when writing the Colorado Constitution in 1876. While the controversial events of the 1874s in the Poudre Valley were well publicized, similar problems existed throughout the territory. Local governments struggled to solve water rights disputes using the 1861 Territorial Water Laws. Their difficulties illustrated the need to improve the administrative foundations of water law in the new constitution. David S. Plumb of Weld County chaired the committee, which oversaw the incorporation of a water law doctrine into the State Constitution. With regard to water doctrine, language in the State Constitution was kept short; the constitution incorporated the concept of priority of appropriation as the basis of state water law. The new Constitution only briefly mentioned that the state might have to pass and amend legislation affecting water in the state of Colorado.

THE COMPROMISE

By 1878, Benjamin Eaton began construction of another canal to take water from the Poudre. According to noted historian Robert Dunbar, the Larimer and Weld Canal, with a capacity of 720 cubic feet per second, was the single biggest event "to provoke the formulation of the Colorado System."¹² This canal, constructed upstream from all existing canals, had the potential to divert all water from the Poudre in years of low-volume runoff, leaving all the downstream canals dry. The threat of further over-appropriation of water in the Poudre River made a grave situation even worse. In response to this situation, Poudre Valley residents J. L. Brush and Silas Haynes called a meeting of farmers and irrigators from the Poudre Valley, along with some representatives from the nearby St. Vrain Valley. They hoped to discuss the possibility of introducing legislation at the next session of the Colorado General Assembly. The situation in the Poudre Valley demonstrated the need to create permanent institutions within state government that would adjudicate and allocate water use in Colorado. Proposed elements to be included in the legislation were: the creation of a state irrigation bureau headed by a state official; the division of the state into water districts; measurement of all stream flows within the state of Colorado; and to clarify, through legislation, the meaning of "prior appropriation" in the State Constitution.¹³ Though attendance at the meeting was low, the agenda created for the meeting became "the embryo of the Colorado System of Water allocation."¹⁴ These representatives also called for a statewide irrigation convention the following December.

At the December meeting, farmers from throughout the state, but primarily from the streams of the South Platte River basin, pursued nearly the same agenda as the earlier meeting. Also, they established a five member committee to write a proposal for irrigation legislation. Of the five members of this committee, two, David Boyd and John C. Abbott, came from the Cache la Poudre Valley. All agreed on the essential elements of the proposal, but they differed over the "Nature of Prior Rights."¹⁵ The two Poudre Valley representatives favored the attachment of water rights to the ditch owners and operators, while the others, especially Isaac Bond of Longmont, hoped to tie the priority of rights directly to the water users. The bill that resulted from the Colorado Legislature in the fall of 1879 "placed emphasis on use of water rather than the diversion of water, giving prior rights to the farmers rather than the ditch operators."¹⁶ Ditch operators were not to divert any more water from a stream drainage than the water users could beneficially use. Other elements of the 1879 irrigation bill included the division of the state into ten water districts with a water commissioner to divide the water within the ditches of the stream. District courts would allocate and prioritize the available water rights after determining the history of the water use within a particular basin. In a departure from the proposals made from the December 1878, irrigation convention, the Colorado Legislature failed to include the establishment of a state water commissioner and to provide for the measurement of all rivers and streams within the state.¹⁷

The summer of 1879 again proved to be exceedingly dry due to unusually hot summer temperatures and the low volume of runoff from the preceding winter's snows. Again, valley residents became frustrated over their inability to allocate the available water amongst themselves. A situation similar to 1874 resulted, when water users in Ft. Collins

and Greeley began to fight over the available water. To compound problems, Governor Frederick Pitkin failed to appoint water commissioners for the valley that summer. In an attempt to establish order within the Poudre Valley, Judge Victor Elliot of the Second Colorado Judicial District appointed Silas Haynes' son, Harry, as the water referee for the Cache la Poudre River. Harry Haynes took testimony from the area water users in order to determine the dates of ditch construction and attempted to estimate the size, capacity, and gradient of the canals within the Poudre Valley. By spring of the following year, Harry Haynes had not presented his evidence to the court. The situation grew more complex as Poudre Valley farmers felt runoff would be lower than expected. Fearing a lack of water downstream from the diversions in Ft. Collins, Greeley area farmers began a lawsuit against Judge Elliot in an attempt to force him to determine the priority of water rights in the Cache la Poudre Valley. By mid-July of that year, the Poudre Valley finally got its water commissioner, Bryant La Grange. La Grange attempted to work with both sides to find some way of allocation of water within the Poudre Valley, but the absence of a legal decree eliminated the possibility of a settlement. In the fall of 1880, two candidates for the State Legislature from the Poudre Valley, James Freeman and J. L. Brush, promised to introduce legislation that would require court decrees in the establishment of priorities of water use.¹⁸ This situation helped to push the belief that more legislation should be enacted that would streamline Colorado's irrigation laws.¹⁹

Once elected, James Freeman became chairman of the Senate's Irrigation Committee. In this position, Freeman, with the help of other representatives, especially Ledru R. Rhodes of Ft. Collins, introduced legislation to establish a State Commissioner of irrigation and to require measurement of all rivers and streams within the state of Colorado. Freeman waited until the Colorado Supreme Court decided the case in favor of Greeley, against Judge Elliot to introduce his legislation. This legislation included improvements in the adjudication process. Prior to testimony being taken in these suits, the state engineer would measure the capacities of the streams and present this information as evidence in court.²⁰ A third part of the Freeman Bill required the clerk in each county to record and file all information regarding irrigation, in order to be part of the public record. By April of 1882, Judge Elliot finally determined that Greeley farmers had rights prior to those of the water users of Ft. Collins. This decree was the first adjudication granted under the newly completed Colorado System.²¹

The Colorado System of Water Allocation

The underlying principle of the Colorado System of Water Allocation is the Doctrine of Prior Appropriation. This doctrine is based on a rather simple concept: first in time, first in right. The first individual, being a person, group, or corporation who files for the water, is the first in line to use this water. Historically, the concept of prior appropriation came about as the result of placer mining in California. Miners, needing water to wash alluvial deposits for gold ore, diverted water away from stream beds to these ore deposits. In situations where more than one miner or group of miners vied to use the available water, the priority of water use resulted from the chronological order in which the water was put to use. In the 1855 California Supreme Court decision *Irwin v. Phillips*, the court decided in favor of a miner who first put water to use; the latter miner was found to be in "trespass" of the former miner's property.²² The Doctrine of Prior Appropriation came to

Colorado during the outbreak of gold discoveries. Miners from California who sought gold in the Colorado mountains brought with them a doctrine of water allocation based on the individual's timing of use.²³

There are three elements that make a valid appropriation: 1) An intent to apply the water to a "beneficial" use, 2) an actual diversion of water from a natural source, and 3) the application of the water to a beneficial use within a reasonable time.²⁴ A beneficial use is defined as any economic or social use that the state deems to be beneficial; this use must have a specific, stated purpose.²⁵ Water is considered to be beneficially used if it is reasonably or appropriately used in an efficient manner to accomplish, without waste, the purpose for which the appropriation is lawfully made. These uses include domestic, agricultural, industrial, municipal, recreational, and in many western states, a guaranteed minimal instream flow.²⁶ There must be an actual diversion or physical engineering feature present to divert water from a river or stream. This includes any pump, dam, or canal/ditch facility that physically moves the water away from its natural course. The water must be put to the stated beneficial use on the appropriators' property within a reasonable amount of time, depending on the nature of the stated use. Failure, in the long term, to put the water to a reasonable use within a reasonable amount of time denotes abandonment. In such cases, in the Colorado System of Water Allocation, the water right forfeits to the state.

Within the Colorado System, the Prior Appropriation Doctrine is applicable to all water, except nontributary ground water.²⁷ In Colorado and in most western states, a tributary is generally regarded as being "a surface water drainage system that is interconnected with a river system." For example, under Colorado Law, all surface and groundwater, the withdrawal of which would affect the rate or direction of flow of a surface stream within one hundred years, is considered to be tributary to a natural stream.²⁸ In many cases, some of the elements defining tributary water may be missing, but western states, especially Colorado, contend that the waters are in a water course and, therefore, subject to state control.²⁹

As a general rule within the Colorado System, water is considered to be public property. State governments exercise the authority to allocate water rights and to preserve, manage, and regulate this resource in a manner that is in the interest of the public.³⁰ Water ownership is sovereign rather than proprietary; the state has taken the duty to "regulate" its appropriation under the rubric of state ownership.³¹ But individuals own the right to beneficially use the water. Once title is acquired by an individual, that person has the right to divert and to use an amount of water. In this context, a water right becomes "private property." These rights may be bought and sold, leased, traded, or transferred to another locality as long as other water rights are not affected. Sales and transfers of these rights are subject to market prices and not subject to "the consideration of public interest values."³² Water rights are considered to be just like any other form of private property; they can be assigned and mortgaged, and not be taken involuntarily by a governmental entity without just cause and without proper monetary compensation.³³ Western states that use the Colorado System as the basis for their water allocation system protect water rights under the private property clauses of their constitutions.³⁴

Priority of water use is at the center of both the Prior Appropriation Doctrine and the Colorado System of Water Allocation. The appropriator with the earlier decree is given seniority over those individuals with later decrees. In terms of types of water rights, positions of seniority and juniority are assigned to the order in which water is used. For instance, when there is an inadequate amount of water for all water users, those users with senior rank receive water before any junior rights are fulfilled. However, there are some qualifications regarding this relationship. A senior appropriator may not change their point of diversion if it adversely affects a junior right. Additionally, a senior appropriator is not supposed to use any more water than the amount needed and is also not supposed to waste any of the resource.³⁵ Many of the states using the Colorado System have stated preferences within their state constitutions that specify a superiority of certain types of water use over others. Varieties of use are often ranked according to their greater benefit. For example, Colorado ranks water use preferences in the following manner: water for domestic uses is first, agricultural and irrigation uses are ranked second, and manufacturing uses are third. Water used in mining practices is classified with manufacturing uses.³⁶ Most often preference categories are overlooked, but in times of excessively low water, these categories influence the priority of water use and allocation.

Other Water Allocation Systems in the American West

In contrast to the Colorado System, three other water systems are used in the American West: the California System, the Mormon or Utah System, and the New Mexican Water System. Of these systems, only the California System is used to any great extent in the West. Both Utah and New Mexico eventually adopted the Colorado System as their dominant form of water allocation, but some elements of the old systems are still in use. The California System is an interesting combination of both the Riparian Doctrine and the Prior Appropriation Doctrine. States using variations of the California System; California, Oregon, and Washington, have very unique geographical and hydrological situations. High mountain ranges divide these states into wet and dry areas. West of the mountains, a narrow strip exists that receives thirty or more inches of rain per year. In the eastern part of these states, the same arid and semi-arid conditions exist as elsewhere in the West. California, from the beginning, adopted both the Riparian and the Prior Appropriation doctrines as the basis of their water system.³⁷ From its mining history, the State of California adopted the Prior Appropriation Doctrine to divert water away from streams. People living adjacent to streams applied for riparian rights under statutes, based on the fact that they bought land along a stream before anyone attempted to appropriate water away from the stream. To date, the understanding has emerged that the appropriator has acquired the superior right.³⁸ The states of Washington and Oregon have a modified California System. Both Riparian and Prior Appropriation doctrines are in use, but the doctrine used depends upon geographic location. In the arid portions of these states, the Prior Appropriation Doctrine is the basis of water allocation, while the "wet" western parts allocate water based on the Riparian Doctrine.

As the Mormons settled Utah in the 1840s, they quickly built small irrigation ditches in their desert home. Immediately following their arrival in the Salt Lake Valley, they began the construction of City Ditch. Under this doctrine, all water was public property, but

under the direct control of the theocracy of the Mormon Church. Mormon officials divided the available land into equal parcels and stated that water should be divided equitably amongst the water users. The theocracy placed each stream under a watermaster who answered directly to the local bishop or the local municipal council. The watermaster would allocate water equally to all water users and be responsible for maintenance of the ditch and canal facilities. In times of disputes, the watermaster would arbitrate between the parties involved. Appeals beyond the watermaster and more complex situations depended upon Mormon Church officials to act as the ultimate authority with regard to water-related matters.³⁹ Though this practice officially ended in 1880, the members of the Mormon Church retain many elements of this system today.

The New Mexican Water System is based on Spanish concepts of water allocation. Under Spanish practices, irrigation ditches were cooperative in nature, but under the strict control of a mayordomo or ditch boss. The ditch members elected the mayordomo in addition to a peon council. The council oversaw the fiscal and political aspects associated with the ditch, while the mayordomo was responsible for the day-to-day allocation of water to ditch members. The mayordomo's authority to allocate water was without question. At times when other ditches along the water source took too much water for themselves, the mayordomo of the affected ditch worked out a compromise with the other mayordomos of upstream ditches in order to get water to his ditch. Many areas of northern New Mexico continue to use this system today though New Mexico has officially adopted the Colorado System as the basis of its water laws.

Development of the Colorado System

The Colorado System of Water Allocation did not develop overnight. Instead it developed through a series of legal and legislative steps, which gradually refined the Prior Appropriation Doctrine into what is now known as the Colorado System. The 1861 Territorial Legislature passed the first irrigation law in Colorado. This law stated if there was an inadequate amount of water, then a commission of three people would have to apportion the available water with "due regard to all legal rights."⁴⁰ This ill-defined system would work only as long as ditches were small and demand for water was minimal.⁴¹ At that time, the population of the Poudre Valley was still very small. The population only began to rise with the establishment of the Union Agricultural Colony in Greeley after 1870. Again in both 1864 and 1865, the Territorial Legislature amended this law, but did not change the mechanism for settling water priority disputes. The combination of this and over-appropriation, as seen in the Poudre Valley in the late 1870s, was enough to instigate changes within the system of Colorado's water laws.

Constitutional and Legislative Developments

Demand for water often began to exceed supply by 1876. As mentioned earlier, in 1874 the Poudre Valley experienced a low volume of runoff due to a lack of winter precipitation. When the constitutional drafting committee met in 1875, they must have been aware of changes in the demand for water since the passage of the 1861 law. Illustrated in the experiences of the Cache la Poudre Valley, the increased demand for water and the arguments concerning allocation resulted in the need to drastically amend Colorado's

Irrigation Laws. The 1876 Colorado Constitution does not classify these laws in terms of Water Law, but in terms of Irrigation Law. Immediately after intensive agriculture began in the Poudre River Valley, because of the establishment of both the Union Colony and the Ft. Collins Agricultural Colony, the Poudre Valley became the most agriculturally productive area in the entire territory. The 1876 Constitution officially stated that all waters in the state were public property and subject to appropriation. More importantly, the Constitution officially declared "the Priority of Appropriation shall give the better right as between those using the water."⁴² Though the new Colorado Constitution reemphasized Doctrine of Prior Appropriation as being the basic tenet concerning the allocation of water in the state, it did not prescribe any changes over the 1861 Territorial Statute in solving problems of priority of water allocation. Other sections of the constitution established the right-of-way or an easement for canal operators to construct their ditches across private property and gave county commissioners the ability to set the rates for water sold on the public market.

By 1878, there were enough problems regarding the allocation of water to justify revision to the older Territorial Laws and replace them with an improved system of water allocation. The Doctrine of Prior Appropriation would remain as the basis for the new system, but legislators decided changes must be made in the mechanism that settled water rights questions. The old mechanism of establishing three commissioners to settle water allocation problems had proved too slow and inefficient. The 1879 state act created the combination of a state water court to adjudicate questions of priority and divided the state into divisions based on geographic locale. Each division established would be controlled by a commissioner who had two primary responsibilities. He would gather information concerning water appropriations for the State Water Court and administer the river basins within his division. Divisions were then subdivided into districts based on the geographic parameters of individual river basins. Each basin was under the control of a river commissioner. The river commissioner was responsible for controlling all water allocations within his river basin. Hopefully, the river commissioner would be familiar enough with the workings of his valley that he would be able to settle small disputes without going to State Water Court.⁴³ Currently, there are seven water divisions within the State of Colorado and eighty river districts.

Following the passage of the 1879 law, incidents in the Poudre Valley made it necessary to again revise Colorado's Irrigation Laws. With 1879 being another drought year and the possibility of this continuing through 1880, the communities of Ft. Collins and Greeley resumed fighting over the available water. The courts had yet to decide on which community had the prior claim to appropriate water from the river. Both communities demanded more legislation, especially legislation that would measure streams and allow a state water engineer to oversee all allocations and appropriations of water.⁴⁴ The revised legislation would not only qualify appropriations, but quantify them as well. This would result in the possibility of further dividing the available water so the appropriator with the senior right might get the greater share of the water, while leaving some water for the other appropriators. The 1881 Water Law, passed through the effort of Poudre Valley legislative representatives, established both a state commissioner of irrigation or a state engineer and a system to be used for the measurements of streams. The state engineer

would coordinate between each of the ten water districts and be responsible for all stream measurements.⁴⁵

Legal Developments

By themselves, the legislative acts of 1879 and 1881 did not make up the entirety of the Colorado System. In shaping the Colorado System, three court cases from the period or shortly thereafter helped to define the earlier legislative efforts.⁴⁶ Though *Yunker v. Nichols* set a precedent in helping to establish interpretations of pre-Constitutional Colorado Water Law, it was still an important enough decree to apply it to the new laws of the state of Colorado. This opinion simply legally guaranteed the right of the irrigator for right-of-way across other people's property with regard to the building and maintenance of their facility.⁴⁷ Perhaps the single greatest water court case settled in Colorado was *Coffin v. Left Hand Ditch Co.* This 1882 case finally settled the question of Prior Appropriation in the State of Colorado. Two parties in the St. Vrain basin appropriated water from the St. Vrain River about the same time, but one lived within the riparian environment of the river basin, while the other appropriated water away from the river. The Colorado Supreme Court mandated that Prior Appropriation would be the doctrine of water law since "the climate invoked the imperative necessity for artificial irrigation to be applied to the soil."⁴⁸ This decision mandated sections 5 and 6 of Article XVI of the State Constitution. Questions of the priority of end use resulted with the 1891 *Armstrong v. Larimer County Ditch Co.* Section 6 of Article XVI of the Constitution states that domestic needs outweigh agricultural needs, which outweigh manufacturing end uses. This decision settled the differences between a farmer irrigating farmland with senior water rights and a group of families with junior rights. The inability of the families to obtain an adequate supply of water resulted in the decision guaranteeing a family's need for water superseded the need of water for agriculture.⁴⁹

Establishment of the Wyoming System

The Colorado System of Water Allocation, with regard to the creation of a workable arrangement for the allocation of water on a statewide level, has been adopted by most of the states in the Rocky Mountain West. The legal and legislative precedents of the Colorado System serve as the basis of these states' water laws. In 1886, Elwood Mead accepted a position at the Colorado Agricultural College, later Colorado State University at Ft. Collins, as Professor of Irrigation Engineering.⁵⁰ He served at this position for two years until 1888, when he became territorial engineer of Wyoming. During his short tenure in the Cache la Poudre Valley, he observed the day-to-day workings of the infantile Colorado System and decided a few minor defects still persisted. When he became territorial engineer in Wyoming, he was in the position to correct these problems. Wyoming, like most of the other states in the region copied the 1879 and the 1881 Legislative Acts.⁵¹ Mead noticed there was room for improvement in the adjudication process. Incorporated into the Wyoming Constitution of 1896 were a series of techniques intended to streamline the adjudication process. Collectively, these techniques have become known as the Wyoming System of Administration. To Mead, the administration of the Colorado System resulted in unequal allocation of water to the water users and haphazard planning and construction of irrigation ditches.⁵² Centralizing the ability to

allocate water within the office of the state water engineer instead of the water courts, would allow an individual seeking water to simply submit an application. The state engineer's office had the ability to approve or deny any permit for water use, depending upon the availability of water.⁵³ This eliminated the lengthy process of obtaining a court decree guaranteeing the use of water. While the Colorado System became the model for state water laws and institutions in the American West, most of the western states have copied the Wyoming System of administration.

Interstate Aspects of the Colorado System

As farmers pushed into new areas of the front range and as towns grew into cities, they continued to demand more water from the Cache la Poudre Basin. The search for additional water soon took them beyond the geographic confines of the Poudre Valley and brought them into conflict with other states. By 1922, water was being diverted through transmountain diversions from the Laramie River into the Cache la Poudre River drainage. The State of Wyoming sued the State of Colorado in federal court contending that irrigators in Wyoming had senior water rights to the users in Colorado. The court decided that the water rights of the irrigators in Wyoming were senior to those in Colorado and that water rights guaranteed through the Doctrine of Prior Appropriation held when water allocation from rivers had interstate impact. Interstate concerns of water allocation have been codified through various interstate river compacts, which allocate and divide water in interstate river drainages. With the advent of federally sponsored irrigation projects by the Bureau of Reclamation, interstate problems again were increased. States that store water in Bureau of Reclamation projects must not only divide water among water users within that state, but must also guarantee set water quantities to downstream users in other states. With respect to the Cache la Poudre River drainage, the development of the Colorado-Big Thompson Project in the mid 1950s added more water to the Poudre and Big Thompson rivers through a series of reservoirs and transmountain tunnels. With the increased flow of water to these rivers and others resulting from interbasin diversions, the state apparatus for policing the allocation of water set up through the Colorado System of Water Allocation took on interstate responsibilities.

CONCLUSION

From the context of the development of water-related institutions in the American West, the Colorado Doctrine of water allocation possesses national significance. The legislative, constitutional provisions, and court decisions associated with Colorado's system of water management, can in large measure be traced to historical events and resources within the Cache la Poudre River Basin. Eventually, all the semi-arid mountainous states, including Alaska, followed Colorado's lead in water allocation.

The aridity of the region forced the abandonment of old agricultural practices and the establishment of new farming methods and institutions. More specifically, the Riparian Doctrine did not function well in the American West due to the lack of adequate precipitation. Agricultural settlement of the Cache la Poudre River precipitated a major water crisis, which resulted in Colorado establishing the first complete system of water rights management in the Rocky Mountain region. The new system created from the

experiences in Colorado, especially in the Cache la Poudre River Basin, worked well within this semi-arid environment. The Colorado System, using the Doctrine of Prior Appropriation, established a means through which water rights could be both adjudicated and allocated effectively. The new system, created from the historical experiences of the Anglo-American settlers in the Cache la Poudre Valley, quickly became adopted and used as the basis of water law throughout the mountain states of the American West.

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33. Getches, 88.
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37. *Ibid*, 192.
38. *Ibid*, 194-195.

39. Robert G. Dunbar, *Forging New Rights in Western Waters* (Lincoln, Nebraska: University of Nebraska Press, 1983), 9-17.
40. Dunbar, "The Origins of the Colorado System of Water-Right Controls", 241.
41. *Ibid*, 241.
42. *Constitution of the State of Colorado*, Article XVI, sec. 6.
43. Dunbar, "Origins of the Colorado System of Water-Right Controls," 252-255.
44. *Ibid*, 257-258.
45. *Ibid*, 257-259.
46. All three of these cases come from ditch systems located within the South Platte River basin. The *Yunker v. Nichols* (1872) decision resulted from problems located in Weld County. The landmark decision, *Coffin v. Left Hand Ditch* (1882) grew out of questions in a ditch system located in the South Fork of the St. Vrain River. The decision settling the seniority of water rights, *Armstrong v. Larimer County Ditch Co.* (1891) occurred in the Cache la Poudre Valley.
47. *Yunker v. Nichols*, 1 Colo. 551(1872) and Vranesh, *Colorado Water Law*, 627-629.
48. Vranesh, *Colorado Water Law*, 123-127.
49. *Ibid*, 809-813.
50. Dunbar, "The Origins of the Colorado System of Water-Right Controls," 253.
51. Dunbar, *Forging New Rights in Western Waters*, 105.
52. *Ibid*, 106.
53. J. Warner Mills, *Mills Irrigation Manual* (Denver, Colorado: Mills Publishing Co., 1907), 83.

APPENDIX C HISTORIC RESOURCES WITHIN THE 18½-MILE CACHE LA POUDBRE RIVER CORRIDOR

INTRODUCTION

A reconnaissance level historic sites survey identified 10 historic resources within the Poudre River Corridor related to the historic context, "Development of the Colorado System of Water Allocation and Its Impact upon Western Water Law." Three of the resources may possess national significance within the framework of this historic context. These resources consist of **1) The Diversion Dam and Headgate of the Larimer and Weld Canal, 2) The Diversion Dam and Headgate of the Lake Canal, and 3) The Diversion Dam and Headgate of the Greeley Canal (Union Colony) Number 2.**

These three resources represent the thematic framework found in *History and Prehistory in the National Park System and the National Historic Landmark Program* under the following themes, subthemes, and facets: *X. Westward Expansion of the British Colonies and the United States, 1763-1898; F. The Farmer's Frontier; 4. Settling and Farming in the Great Plains, 1862-1900.* No National Historic Landmarks (NHLs) are currently represented under this historic framework. One unit of the National Park Service, Homestead National Monument of America, Nebraska, reflects this framework. Homestead National Monument, however, represents settlement of the humid belt of the Great Plains, east of the 100th meridian, where irrigation was unnecessary for successful agricultural development.

The three canals also represent NHL theme, and subtheme: *XXVIII. The Law; A. The Development of Principles in the Legal Specialties.* No units of the National Park System currently exist under this framework. Ten NHLs have been designated under this category. However, none of the NHLs are located in the west, and none relate to theme of western water law.

Finally, the three canals reflect the NHL theme, subtheme, and facet: *XI. Agriculture; E. Agriculture as Business Enterprise Beyond Self-Sufficiency, 1820-.* Only one unit of the National Park System, Green Springs Historic District (affiliated area), VT, is currently listed under this classification. Fourteen NHLs have been designated under this theme. Located on the Atlantic Seaboard, Green Springs did not involve the development of an intensive irrigation system. Three NHLs, the Carlsbad Reclamation Project, NM, Senator Francis G. Newlands Home, NV, and Roosevelt Dam, AZ, relate to theme of a reclamation projects in the West. However, each of these three NHLs relate directly to the formation of our National Reclamation Program and the establishment of the Bureau of Reclamation, and not directly to the theme of western water law and administration.

HISTORICAL RESOURCES THAT MAY POSSESS NATIONAL SIGNIFICANCE

LARIMER AND WELD CANAL

Robert G. Dunbar, author of *Forging New Rights in Western Waters*, contends that "no other event did so much to provoke the formulation of the Colorado System as the construction of this big canal."¹ In the late 1870s Benjamin Harrison Eaton, later to become Colorado's "Granger Governor," purchased 25,000 acres of potential farmland from the Union Pacific Land Department, a subsidiary of the Union Pacific railroad. Recognizing that successful agricultural settlement was dependent on a reliable irrigation system, the former member of the Union Colony began construction of this 53-mile-long canal in 1878. Designed with a capacity to carry 571 second-feet of water, the canal was projected to irrigate 50,000 acres of farmland. Financing for the irrigation project was obtained from Colorado Mortgage and Investment Company, a collection of British capitalists. Incorporated under the name, the Larimer and Weld Irrigation Company, this group completed construction of the project in 1881. At that time, the canal constituted the largest and longest canal in the state.²

The carrying capacity of the canal and its location upstream from the majority of other irrigation ditches, triggered concern from both the Union Colony and Fort Collins farmers. Once constructed, the large canal threatened to divert all water from the Poudre River during years of low spring run-off. The threat galvanized public recognition that a new system for water allocation and adjudication was imperative. The canal's construction precipitated a meeting in Greeley on October 19, 1878, to consider legislation regarding water rights. Participants at the meeting, including Jared L. Brush, recently elected to the Colorado House of Representatives, produced a legislative agenda, which later became the nucleus of the Colorado System of Water allocation.³ The Larimer and Weld Canal was determined eligible for listing in the National Register of Historic Places on April 2, 1980.

GREELEY CANAL #2

The Greeley Canal #2 was the first major canal constructed by the Union Colony. The colony was founded by Nathan C. Meeker, agricultural editor of Horace Greeley's *New York Tribune*. With Horace Greeley's support, a site for the colony was selected near the confluence of the Cache la Poudre and South Platte rivers in northern Colorado in 1870. Although the agricultural colony planned four canals, only two were built. The colony was collectively responsible for constructing the ditches, with each member liable for assessment of costs of maintenance and operation. The first canal was a small, short canal designed to provide irrigation water to town lots, for vegetable gardens. Edwin S. Nettleton, the colony engineer, designed Canal #2 to transport 280 acre-feet of water to bench lands north of the Poudre River. Cost of the construction soon outpaced the colony's financial reserves and farmers were eventually assessed an additional 35 cents

an acre to support the ditch. Construction of the canal began in 1870 and when completed, the 36-mile-long canal had cost the colony \$87,000.⁴

A severe drought in 1874 resulted in insufficient water for both of the colony's canals. When Meeker and two colony members journeyed upstream to inspect the Poudre River near their Canal #2 headgate, they discovered water had been diverted into two canals built by another agricultural colony at Fort Collins. Irrigators of the Fort Collins colony had taken advantage of their upstream placement and diverted water to their canals, while disregarding the Union Colony's prior right to the stream. The Union Colonists requested a court-ordered injunction to close the upstream headgates, arguing they possessed a prior appropriation of the irrigation water. The conflict resulted in the first of a series of conferences designed to resolve the water allocation/adjudication problem. These meetings and conferences would eventually result in the establishment of the Colorado System of water management. Greeley Canal #2 was determined eligible for listing in the National Register of Historic Places on June 20, 1989.

LAKE CANAL

Between 1873 and 1874, John C. Abbot, a member of the Union Colony, and Benjamin H. Eaton, future governor of Colorado, combined resources to build the Lake Canal. Located upstream of Greeley Canal #2, the canal was one of the first two canals constructed by the recently founded agricultural colony of Fort Collins, Colorado. Two years earlier, the U.S. Government had closed Camp Collins and offered its 3,000 acre military reservation for sale. The agricultural colony of Fort Collins was established to purchase the acreage and to build an irrigation system for the town and its associated farmlands. R. A. Cameron, vice president of the Union Colony, became its first president.⁵

By constructing the headgates of the Lake Canal upstream from those of the Greeley Canal #2, Fort Collins irrigators were in a strategic position to divert more water into their canal during the drought of 1874. The water shortage of that year precipitated a meeting on July 15, 1874, at the Eaton School, located midway between Greeley and Fort Collins. The Union Colony members advocated the adoption of the principle of prior appropriation to resolve the water problem. Fort Collins irrigators, on the other hand, advocated the appointment of a commissioner who would divide the water according to the amount of land under cultivation or according to the greatest need. The threat of a court-ordered injunction by the Union Colony, in combination with a fortuitous heavy rainfall a few days later, temporarily eliminated the crisis. However, the issues raised at that meeting would be raised again at subsequent meetings and ultimately result in the establishment of a new method of acquiring, determining, and administering water rights known collectively as the Colorado System.⁶

Other water-related resources within the study area:

- Josh Ames Diversion Ditch
- Arthur Diversion and Ditch
- Timnath Reservoir Inlet and Diversion

- Coy Ditch and Diversion
- Chaffee Headgate and Canal
- Fossil Creek Ditch
- Boxelder Ditch

1. Robert G. Dunbar, "The Origins of the Colorado System of Water-Right Controls," *The Colorado Magazine*, 27 (October, 1950): 245.
2. Answel Watrous, *The History of Larimer County, Colorado* (Fort Collins, Colorado: The Courier Printing and Publishing Company, 1911), 283.
3. Dunbar, "Origins of the Colorado System of Water-Right Controls", 243-244.
4. Robert G. Dunbar, *Forging New Rights in Western Waters* (Lincoln, Nebraska: University of Nebraska Press, 1983), 21-22.
5. Colorado Irrigation Centennial Committee, *A Hundred Years of Irrigation in Colorado, 1852-1952* (Denver, Colorado: Colorado Water Conservation Board, 1952), 34.
6. Dunbar, *Forging New Rights in Western Waters*, 88-89.

